REMARKS

Reconsideration and allowance of the present application are respectfully requested. Claims 1-42 remain pending in the application. By this Amendment, the abstract is amended; and claims 1, 19, 22, 31 and 34 are amended.

Applicants acknowledge with appreciation the indication in numbered paragraph 7 of the final Office Action that claims 4-9, 11-14, 24-26, 28, 36, 37 and 39 contain allowable subject matter.

In numbered paragraph 2, independent claims 1 and 34, along with various dependent claims, are rejected as being unpatentable over U.S. Publication No. 2002/0147728 (Goodman et al.) in view of U.S. Patent 6,525,255 (Funaki). In numbered paragraph 3, dependent claims 3 and 35 are rejected as being unpatentable over the Goodman et al. publication in view of the Funaki patent, and further in view of U.S. Patent 6,185,527 (Petkovic et al.). In numbered paragraph 4, dependent claims 15-18 and 40-42 are rejected as being unpatentable over the Goodman et al. publication in view of the Funaki patent, and further in view of U.S. Patent 6,434,520 (Kanevsky et al.). In numbered paragraph 5, independent claims 19, 22 and 31, along with various dependent claims, are rejected as being unpatentable over the Goodman et al. publication in view of the Funaki patent, and further in view of the Kanevsky et al. patent. In numbered paragraph 6, dependent claim 23 is rejected as being unpatentable over the Goodman et al. publication in view of the Funaki and Kanevsky et al. patents, and further in view of the Petkovic et al. patent. These rejections are respectfully traversed.

Applicant has disclosed a method and system for automatic classification of music (e.g., paragraphs [0029] and [0030]). A music piece is received for

determining when the received music piece comprises human singing by analyzing a waveform of the music piece (e.g., paragraphs [0032] & [0033]). A received music piece can comprise a segment of a musical work; an entire musical work, such as a song; or a combination of musical segments and/or songs (e.g., paragraph [0030]). The received music piece is labeled as singing music or instrumental music, based on whether human singing voice is present (e.g., paragraph [0031]).

The foregoing features are broadly encompassed by Independent claim 1, which recites, among other features, determining when the received music piece comprises human singing by analyzing a waveform of the music piece comprising a plurality of music components. Independent claims 22, 31 and 34 similarly recite determining when the received music piece comprises human singing by analyzing a waveform of the music piece comprising a plurality of music components. Independent claim 19 recites "selecting parameters for controlling the classification of a music piece comprising a plurality of music components, wherein the selected parameters establish a hierarchy of categories for classifying the music piece; determining, in a hierarchical order and for each selected category, when the music piece satisfies the category by analyzing a waveform of the music piece."

The Goodman et al. publication discloses utilizing metadata for each track to build hierarchical database of tracks (paragraphs [0053] and [0057]). However, the Goodman et al. publication does not teach or suggest determining when the received music piece comprises human singing by analyzing a waveform of the music piece comprising a plurality of music components, as recited in claim 1. Rather, the metadata as disclosed by the Goodman et al. publication are "the name of the album

the track is from, the name of the song, the genre of the song, and the type of track" (paragraph [0054]). Claim 1 is therefore allowable.

The Petkovic et al. patent, considered individually or in combination with the Goodman et al. publication and/or the Kanevsky et al. patent, does not cure the deficiencies of the Goodman et al. publication. The Petkovic et al. patent was applied for its disclosure of "the absence of detected musical harmonics as a reliable test for speech" (col. 11, lines 29-31). However, in the context of vocal singing, the human singing by its nature does demonstrate musical harmonics. Accordingly, the Petkovic et al. patent teaches away from distinguishing human singing from instrumental music. The Petkovic et al. patent does not teach or suggest at least determining when the received music piece comprises human singing by analyzing a waveform of the music piece comprising a plurality of music components, as recited in claim 1.

On page 4 of the Office Action, the Examiner relies on col. 42, lines 22-36; col. 46, line 53 through col. 47, line 49 to assert that "Funaki teaches a technique to isolate human singing signal from a received music piece using waveform analysis." This assertion is respectfully traversed.

The Funaki patent discloses a sound signal analyzing device in which an average value of sound signal in a given window is computed to detect a steady section of musical sound characterized by a musical note (abstract; col. 42, lines 22-25). The segment classification is based on an input sound from a microphone in which a steady section of the sound other than the fluctuating section can be effectively analyzed (abstract). The segment classification as taught by the Funaki patent does not serve to distinguish human singing from instrumental music. Rather,

the Funaki patent merely discloses processing an isolated input sound from a microphone or the like to distinguish a musically significant segment from unsteady sections containing ambient noise or silence. As exemplified in Fig. 29 of the Funaki patent, the Funaki patent relates to classifying time segments of an input sound into stable sections V1-V3 and musically insignificant (noise) sections (col. 47, lines 22-25). The Funaki patent does not relate to determining whether human vocal singing is present in a music piece comprising a plurality of music components.

The Funaki patent, considered individually or in combination with the Goodman et al. publication and/or the Kanevsky et al. patent, does not cure the deficiencies of the Goodman et al. publication. The Funaki patent does not teach or suggest determining when the received music piece comprises human singing by analyzing a waveform of the music piece comprising a plurality of music components, as recited in claim 1, and as similarly recited in claims 22, 31 and 34. The Funaki patent does not teach or suggest "selecting parameters for controlling the classification of a music piece comprising a plurality of music components, wherein the selected parameters establish a hierarchy of categories for classifying the music piece; determining, in a hierarchical order and for each selected category, when the music piece satisfies the category by analyzing a waveform of the music piece," as recited in claim 19.

The Kanevsky et al. patent, considered individually or in combination with the Goodman et al. publication, the Funaki patent, and/or the Petkovic et al. patent, does not cure the deficiencies of the Goodman et al. publication. The Kanevsky et al. patent was applied for its disclosure of indexing segments of audio data file for storage in a database in accordance with identification tags of verified speakers (col.

1, lines 54-56). However, the Kanevsky et al. does not distinguish human singing from instrumental music. The Kanevsky et al. patent does not teach or suggest at least determining when the received music piece comprises human singing by analyzing a waveform of the music piece comprising a plurality of music components, as recited in claim 1.

Even if considered in combination as suggested by the Examiner, the Goodman et al. publication, the Funaki patent, the Petkovic et al. patent and/or the Kanevsky et al. patent do not teach or suggest a method/system for automatic classification of music in which human singing is distinguished from an instrumental music by analyzing a waveform comprising a plurality of music components as recited in claim 1, and as similarly recited in claims 22, 31 and 34; and do not teach or suggest "selecting parameters for controlling the classification of a music piece comprising a plurality of music components, wherein the selected parameters establish a hierarchy of categories for classifying the music piece; determining, in a hierarchical order and for each selected category, when the music piece satisfies the category by analyzing a waveform of the music piece," as recited in claim 19.

For the foregoing reasons, Applicant's claims 1, 19, 22, 31 and 34 are allowable. The remaining claims depend from the independent claims and recite additional advantageous features which further distinguish over the documents relied upon by the Examiner. As such, the present application is in condition for allowance.

All objections and rejections raised in the Office Action having been addressed, it is respectfully submitted that the application is in condition for allowance and a Notice of Allowance is respectfully solicited.

Respectfully submitted,

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